Programs of Study

Program of Study

- A Program of Study is a sequence of instruction (based on recommended standards and knowledge and skills) consisting of coursework, co-curricular activities, work-site learning, service learning and other learning experiences. This sequence of instruction provides preparation for a career.

Career Clusters Web Site:

http://www.careerclusters.org/definitions.php

Community Colleges & Workforce Preparation

Why Programs of Study

- A Program of Study can be:
  - A tool for collaboration between secondary and postsecondary institutions. (Perkins IV, Sec. 122(c)(I)(A)(i))
  - A framework for curriculum revision and alignment with secondary education and postsecondary education. (Perkins IV, Sec. 122(c)(I)(A)(ii))
  - A tool to ensure that CTE is meeting the needs of students, business, industry, and labor. (Perkins IV, Sec. 134(b)(5))

75% of Programs

- The Iowa 5-year Perkins Plan approved by the federal government states that within the next 5 years, 75% of programs at each Local Education Agency (LEA) shall have a Program of Study developed.

  - Example: If you have 8 programs at your secondary school, 6 of them or 75% would need to be Programs of Study by FY '13

COMMUNITY COLLEGES & WORKFORCE PREPARATION

Program of Study

- The Department of Education has elected to utilize the national terminology of Program of Study.

- A drawing board is part of a Program of Study.

- Career and Technical Education Programs offered at the secondary level are integrated into a Program of Study.

Who should be involved with POS?

Step 1 Identify the individuals from each of the partners that will be included in the discussions for the Program of Study. Examples would include Advisory Committee Members, AEA representatives, Community College representatives

Timeline

Step 2   Develop a timeline for which programs at the LEA will be made into a Program of Study in order to achieve the 75% requirement by 2013

Events in the Life of Benjamin Franklin
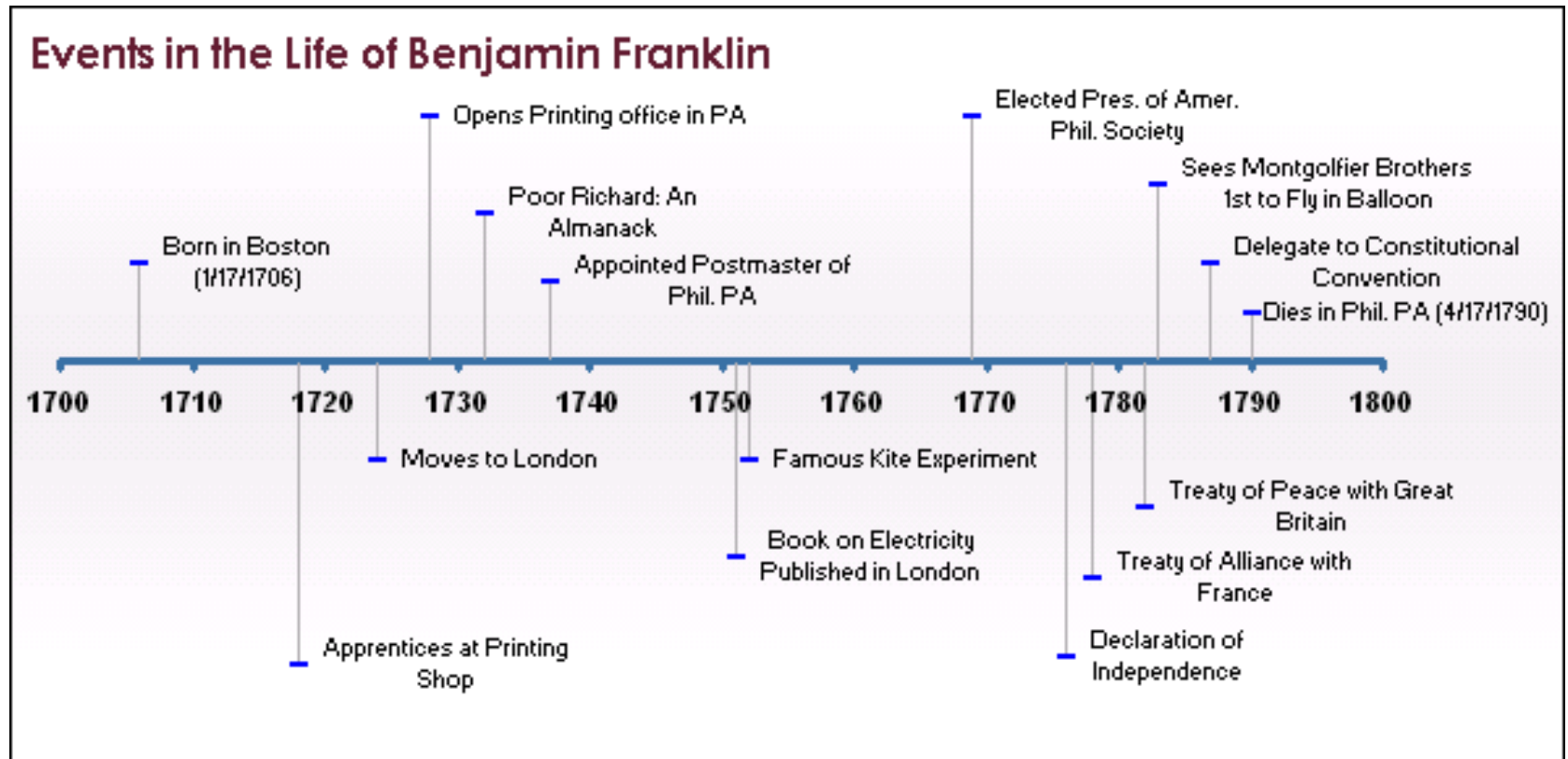
Resources?

Step 3   Determine resources needed to complete the Program of Study. This may include this RFA, the 5.4% given to each Community College to work on this activity and/or may include the LEA's Perkins allocation and affect the Perkins yearly application

COMMUNITY COLLEGES & WORKFORCE PREPARATION

Discussion Time

- People?

- Timeline?

- Resources?

Where is the focus?

Step 4   By reviewing your current programs (each LEA), determine if the focus will be at the cluster level or the pathway level

How are we doing?

Step 5   In cooperation, LEAs, CTE advisory committee and the community college, complete the CTE Program Self Assessment (including the Technical Skill Assessment portion)and identify the current status for each criterion statement.

CTE Program Self-Assessment

How do we improve?

Step 6   Utilizing information from discussions with stakeholder groups and findings from the Self-Assessment, develop a strategic plan and timeline to move non-exemplary items on the self-assessment to the exemplary level.

Figure 1. Strategic planning process.

External scanning

Personal goals

Internal scanning

Business goals

Business strategies

Strategic fit

Portfolio analysis

Sustainable competitive advantage

Enterprise strategies

COMMUNITY COLLEGES & WORKFORCE PREPARATION

What about technical content?

Step 7   LEAs, community colleges and advisory committees collaborate to review the community college standards and benchmarks, national CTE standards and benchmarks and local standards and benchmarks and make judgments about technical content. (i.e. DACUM process)

POS-TSA Relationship
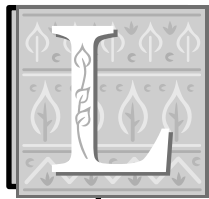
L — Locally Developed
- S, B, CC
- Assessments
- Advisory Committee/ Council approval
- CC approval
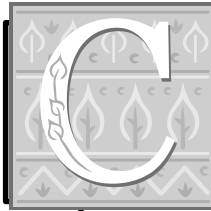
C — Commercially-Developed
- State S, B, CC
- Commercial assessments
- Advisory Committee/ Council approval
- CC approval

I — Industry-Validated
- Industry-recognized standards
- Industry-validated credentials
- Advisory Committee/ Council approved
- CC approval

INDUSTRY-RECOGNIZED CERTIFICATIONS FOR
CAREER AND TECHNICAL EDUCATION PROGRAMS

Cluster: Architecture & Construction

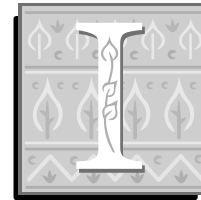| CIP Code	Program Title	Value Added	Certification Description	Issuing Organization
15.1303	Architectural Drafting & Architectural CAD/CADD	Certified Drafter	International certification that recognizes a candidate's drafting knowledge. http://www.adda.org/displaycommon.cfm?an=5	American Design Drafting Association
15.1303 48.0101 48.0102 48.0103	Autodesk Academic Certification for AutoCAD®, AutoCAD® Architecture, Revit® Architecture, AutoCAD® Civil 3D®, Autodesk® Inventor®	Academic Certification	The Autodesk Academic certification program enables students to earn a credential that recognizes their knowledge of specific Autodesk software applications. Students can demonstrate their software skills and gain a competitive edge in their academic and professional careers. Institutions benefit by being able to provide a powerful method to effectively measure student competencies. This comprehensive program for secondary and postsecondary students provides professional-level exams at an affordable academic price. The program also provides student-oriented convenience by letting them take examinations at a local school. The result: the same credential earned by working professionals. http://usa.autodesk.com/adsk/servlet/item?siteID=123112&id=10115126	Autodesk
15.1304	Individual Detailer Certification	Certified Structural Steel Detailer	National Institute of Steel Detailing's Individual Detailer Certification Program (I.D.C.) offers international certification in Bridge and Structural Miscellaneous steel detailing services. http://www.nisd.org/certification_programs.html	National Institute of Steel Detailing
	International Code Council Certified Building Official (CBO)	Certified Building Official	Provides training and certification for individuals to achieve certification as a Building Inspection for inspecting to the International Building Code www.inticode.org/certification/cboinfo.htm	International Code Council
	CSI Certification Program	Certified Construction Specification Writer	Construction Specification Institute's certification program for attaining certification as a Construction Specification Writer www.csinet.org/certify/index.htm	Construction Specification Institute
	Survey Technician Certification Program	Certified Professional Surveyor	Comprehensive national certification program for survey technicians recognized by the U.S. Department of Labor as part of the National Apprenticeship Program. The Survey Technician Certification Board (STCB), which administers this program, recognizes the importance of technicians to the surveying and mapping profession. http://www.nsosmo.org/cst/get_certified.shtml	National Society of Professional Surveyors
Various	Iowa Architecture and Construction-related apprenticeships	BAT Certification	Apprenticeship combines classroom studies with on-the-job training supervised by a trade professional. Apprenticeships are available in carpentry, millwright, plumbing, electrical, and other occupations in this cluster. http://www.iowaworkforce.org/apprenticeship/careers.htm	Unions, Community Colleges, Private Schools, and Employers
46.0101	Mason/Masonry	NCCER credentials Carpentry	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
	ACI Field Technician Certification Program	ACI Field Technician	American Concrete Institute's training and certification program for placing and finishing concrete flatwork www.aci-int.org/	American Concrete Institute
46.0201	Carpentry/Carpenter	NCCER credentials (various trades)	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
46.021	Carpentry/Carpenter	Residential Construction Academy (RCA) National Registry	The RCA, in partnership with Delmar/Thomson Learning, brings together industry know-how with cutting-edge training materials, including textbooks, videos, and CD-ROMS based on industry standards developed by the nation's builders, remodelers, and educators. http://www.hbi.org/page.cfm?pageID=162	Home Builders Institute

46.0303	Lineworker	NCCER credentials - Electrical	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
46.0399	Electrical & Power Transmission Installers, Other	NCCER credentials - Electrical	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
46.0301	Electrician	Iowa State Electrical Licensing	The Iowa General Assembly has enacted legislation (Iowa Code Chapter 103) which establishes a statewide licensing program for electricians and electrical contractors. 2008. Enforcement of these provisions will commence after the administrative rules have been adopted by the Board, the licensing program has been established, and electrical contractors and electricians have the opportunity to apply for and obtain their licenses http://www.dps.state.ia.us/fm/electrician/board/index.shtml	Fire Marshal Division of the Iowa Department of Public Safety
46.0301	Residential Wiring	Residential Construction Academy (RCA) National Registry	The RCA, in partnership with Delmar/Thomson Learning, brings together industry know-how with cutting-edge training materials, including textbooks, videos, and CD-ROMS based on industry standards developed by the nation's builders, remodelers, and educators. http://www.hbi.org/page.cfm?pageID=162	Home Builders Institute
	Home Technology Systems Specialist	Home Technology Integrator Certification (HTI+)	Certification is based on a set of standards designed to measure the mastery of core competencies regarding the installation, integration, and troubleshooting of automated home sub-systems: Home Security, Audio/Video, Computer Networks, Electrical Wiring, HVAC, Cable/Satellite, Broadband, Telecommunications, and Structured Wiring. http://certification.comptia.org/dhti/default.aspx	Computing Technology Industry Association (CompTIA)
46.0401	Building/Property Maintenance & Manager	NCCER credentials (various trades)	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
46.0401	Building/Property Maintenance & Manager	Residential Construction Academy (RCA) National Registry	The RCA, in partnership with Delmar/Thomson Learning, brings together industry know-how with cutting-edge training materials, including textbooks, videos, and CD-ROMS based on industry standards developed by the nation's builders, remodelers, and educators. http://www.hbi.org/page.cfm?pageID=162	Home Builders Institute
46.0408	Painting/Painter & Wall Coverer	NCCER credentials (various trades)	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
46.0499	Building/Construction Finishing, Management & Inspection, Other	NCCER credentials (various trades)	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
46.0499	Building/Construction Finishing, Management & Inspection, Other	Residential Construction Academy (RCA) National Registry	The RCA, in partnership with Delmar/Thomson Learning, brings together industry know-how with cutting-edge training materials, including textbooks, videos, and CD-ROMS based on industry standards developed by the nation's builders, remodelers, and educators. http://www.hbi.org/page.cfm?pageID=162	Home Builders Institute
46.0502	Pipefitting/Pipefitter & Sprinkler Fitter	Residential Construction Academy (RCA) National Registry	The RCA, in partnership with Delmar/Thomson Learning, brings together industry know-how with cutting-edge training materials, including textbooks, videos, and CD-ROMS based on industry standards developed by the nation's builders, remodelers, and educators. http://www.hbi.org/page.cfm?pageID=162	Home Builders Institute
46.5999	Millwright	NCCER credentials (various trades)	NCCER develops and publishes the Contren® Learning Series which consists of construction, maintenance, and pipeline curricula, safety programs; management education, and skills assessments. http://www.nccer.org/credentialsOverview.aspx	National Center for Construction Education and Research (NCCER)
47.0201	Heating, Air	Industry	The Industry Competency Exams measure industry-	Air Conditioning

	Conditioning, Ventilation & Refrigeration Maintenance Technology/Technici an (HAC, HACR, HVAC, HVACR)	Competency Exams (ICE) (Residential Air Conditioning and Heating, Light Commercial Air Conditioning and Heating, Commercial Refrigeration, EPA 608 Certification)	agreed standards of basic competency for entry-level technicians. http://www.ahrinet.org/Content/AHRICertificationPrograms_732.aspx	and Refrigeration Institute
47.0201	HVAC-R Technician	Student Outcome Assessment	Certifies a technician's skill level based on nationally recognized standards. http://www.hvacexcellence.org/studentassessments.htm	HVAC Excellence
47.0201	HVAC EPA Technician Certification	EPA Technician Certification	Certification required to meet EPA requirements for technicians who service units containing refrigerants. www.ari.org/edu/#epaexam	Air Conditioning and Refrigeration Institute
47.0201	HVAC-R Technician	RSES Student Technician	The RSES Technical Institute consists of six levels of HVAC/R technician competency, including student certification. http://www.rses.org/	Refrigeration Service Engineers Society (RSES)
47.0201	HVAC-R Technician	NATE Certification (various certification exams)	Certification program for technicians in the heating, ventilation, air-conditioning, and refrigeration (HVAC/R) industry. http://www.natex.org/	North American Technician Excellence (NATE)
51.8021	Stationary Engineer and Boiler Operator	Stationary Engineer and Boiler Operator	Certifies the principles of safe operation and maintenance of low-pressure and high-pressure boilers.	BAT, State and local requirements.
15.0503	NABCEP Entry Level Certification Program	NABCEP Entry Level Certification Solar Small Wind (under dev.)	The NABCEP PV Installer certification has been developed in accordance with the certification field's best practices. NABCEP is a member of the National Organization for Competency Assurance (NOCA) and has endeavored to follow the requirements of ISO/IEC Standard 17024: General Requirements for Bodies Operating Certification Systems of Persons. Certification identifies installers as professionals, validates extra resources spent on training and gaining experience, allows for installer mobility as the market moves from state to state, and allows installers to distinguish their skills and experience in the field. http://www.nabcep.org/certification/the-need-for-certification	North American Board of Certified Energy Practitioners

TRANSITION TO STRATEGIC PLANNING SLIDE SERIES

Standards and Benchmarks

Step 8   Modify Standards and Benchmarks as necessary to meet the needs of the student, LEAs, community colleges, industry and the community.

S & B but where are they?

Step 9   Determine placement of Standards and Benchmarks into programs and courses.
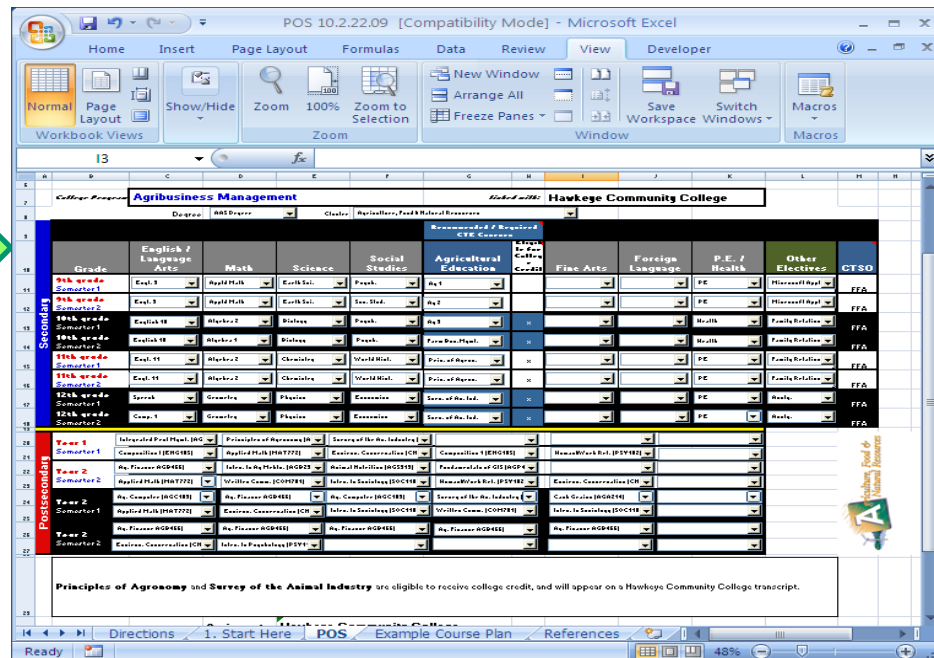
Discussion Time

- Technical Content

- Standards and Benchmarks

Now comes the drawing board…

Step 10: Working with the Advisory Board, the LEAs and the Community College, develop a drawing board for each program at the LEA connecting it to a specific community college program(s).

POS Drawing Board Tool

Name _____

Learner ID _____

School/College/University _____

Architecture and Construction

Career Cluster Plan of Study for ▶ Learners ▶ Parents ▶ Counselors ▶ Teachers/Faculty

This Career Cluster Plan of Study (based on the Architecture and Construction Career Cluster) can serve as a guide, along with other career planning materials, as learners continue on a career path. Courses listed within this plan are only recommended coursework and should be individualized to meet each learner's educational and career goals. *This Plan of Study, used for learners at an educational institution, should be customized with course titles and appropriate high school graduation requirements as well as college entrance requirements.

EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Other Required Courses Other Electives Recommended Electives Learner Activities	*Career and Technical Courses and/ or Degree Major Courses for Architecture and Construction	SAMPLE Occupations Relating to This Career Cluster
		Interest Inventory Administered and Plan of Study Initiated for all Learners						▶ Architect
SECONDARY	9	English/ Language Arts I	Algebra I	Earth or Life or Physical Science	State History Civics or World History	All plans of study should meet local and state high school graduation requirements and college entrance requirements. Certain local student organization activities such as SkillsUSA are also important including public speaking, record keeping and work-based experiences.	**Introduction to the Built Environment*	▶ Carpenter ▶ Civil Engineer ▶ Construction Foreman/Manager ▶ Contractor ▶ Demolition Engineer ▶ Drafter ▶ Drywall Installer ▶ Electrician ▶ Electronic Systems Technician ▶ Equipment/Material Manager ▶ General Contractor/Builder ▶ Heating, Ventilation, Air Conditioning and Refrigeration Mechanic ▶ Interior Designer ▶ Painter ▶ Paperhanger ▶ Plumber ▶ Project Estimator ▶ Project Inspector ▶ Roofer ▶ Safety Director ▶ Sheet Metal Worker ▶ Tile and Marble Setter
	10	English/ Language Arts II	Geometry	Biology	U.S. History		**The Language of Architecture and Construction* **Information Technology Applications*	
	11	English/ Language Arts III Technical Writing	Algebra II	Physics	Economics Psychology		**Safety, Health and the Workplace Environment*	
		College Placement Assessments-Academic/Career Advisement Provided						
	12	English/ Language Arts IV	*Dependent on chosen pathway*	Chemistry			Continue courses pertinent to the pathway selected.	
		Articulation/Dual Credit Transcripted-Postsecondary courses may be taken/moved to the secondary level for articulation/dual credit purposes.						
POSTSECONDARY	Year 13	English Composition English Literature	*Dependent on chosen pathway*	Physics	American Govt. or History, plus Psychology/ Interpersonal Skills	All plans of study need to meet learner's career goals with regard to required degrees, licenses, certifications or journey worker statuts. Certain local student organization activities may also be important to include.	Continue courses pertinent to the pathway selected.	
	Year 14	Speech/ Oral Communication	*Dependent on chosen pathway*	Environmental Science	Sociology Business Law			
	Year 15	Continue courses in the area of specialization.						
	Year 16							

**See course descriptions on page 2.

NCTEF

Use the drawing board.

Step 11   The completed drawing board should be made available to all stakeholders and placed in the school/course handbook and if possible incorporated into the career information system. Plan to educate stakeholders (parents, counselors, students) on the use of the Drawing Board in the development of the 8th grade plans. (personal plan of study)

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Discussion Time

- Drawing board

Technical Skill Attainment (TSA)

Background

- So….what is technical skill attainment assessment?
  - **Measuring critical competencies/performance indicators**

Background

- Is the DE trying to make your lives miserable?
  - **No (I promise!)**
- Valid and reliable
- Student attainment of career and technical skill proficiencies on technical assessments
  - **Aligned to industry-recognized standards**
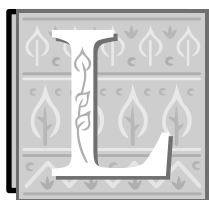
(Section 113 (2) (A) (i) (ii))

COMMUNITY COLLEGES &
WORKFORCE PREPARATION

Validity and Reliability

- Validity- The extent to which the assessment instrument measures what it is supposed to measure

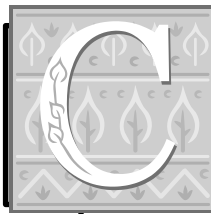- Reliability - The extent to which the assessment results are stable or consistent
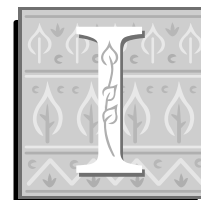
Technical Skill Attainment

Locally Developed

- S, B, CC
- Assessments
- Advisory Committee/ Council approval
- CC approval

Commercially-Developed

- State S, B, CC
- Commercial assessments
- Advisory Committee/ Council approval
- CC approval

Industry-Validated

- Industry-recognized standards
- Industry-validated credentials
- Advisory Committee/ Council approved
- CC approval

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Technical Skill Attainment Assessment Worksheet

- Review checklist at table
  - Where are you?
  - How can you move towards the goal of industry-recognized standards and industry-validated credentials?
    - Strategic Plan needed

      http://www.online-stopwatch.com/

Review

- Summary of presentations
- Next Steps

COMMUNITY COLLEGES &
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Resources

Resources

- **The League for Innovation for Community Colleges has utilized the term Plan of Study on their web page and have Plans of Study available for all career pathways. See http://www.league.org/league/projects/ccti/ccluster.cfm**

- **Career Cluster information can be found at www.careerclusters.org**

- **MBA Research (formerly MarkEd) has developed Programs of Study for many business programs: http://www.mark-ed.org/2.0/Joomla/index.php?option=com_content&task=blogsection&id=9&Itemid=55**

- **Resources will also be made available on the DE Website which will include a listing of commercially developed test companies as well as industry certification: www.iowa.gov/educate**

Program of Study Law References

- Iowa Code
  - **256.7 http://www.legis.state.ia.us/IACODE/2001SUPPLEMENT/256/7.html**
  - **256.11 http://www.legis.state.ia.us/IACODE/2001/256/11.html**
  - **258.3A http://www.legis.state.ia.us/IACODE/2001/256/11.html**
  - **358.4 http://coolice.legis.state.ia.us/Cool-ICE/default.asp?category=billinfo&service=IowaCode&ga=83&input=358.4**
  - **281 http://www.legis.state.ia.us/ACO/IAChtml/281.htm**
- Perkins IV
  - **Sec. 122 http://www.iowa.gov/educate/index.php?option=com_content&task=view&id=265&Itemid=1428**